(see appendix J), but the demand continues and is met even in bad years when maldars are few. Range officers explain that they would be considered incompetent if they were not able to furnish ample free labour for the work required to be done, and the result is that both forests and grazing revenue suffer.

73. In the Annual Administration Report for 1894, paragraph 94, it is stated that it is an undeniable fact that, owing to collusion with forest subordinates, professional as well as non-professional graziers register about half the number of the animals they possess, and the loss to forest revenue from this form of corruption is therefore considerable. It was then anticipated that the substitution of the contract for the department agency of exploitation of timber and firewood would raise the grazing revenue 30 per cent. In 1894-95 the grazing revenue was nearly Rs. 18,000; in 1895-96 it rose to nearly Rs. 21,000, but since then it has fallen, gradually in some years and rapidly in others, until it stood at not quite Rs. 9,500 in 1901-02 and the reason is obvious. The change from department to contract agency of exploitation of timber and firewood left only the grazing receipts in the hands of the subordinates and, of course, free labour continued to be furnished as was required. Money payment for work done is the surest and most economical way of securing the largest interest to the department and the sooner it replaces the present method of remuneration the sooner will the door be closed which, letting in a little, lets out a great deal more.

74. The coupe contractors have no difficulty in getting labourers for their work. Labanas or Chawans eagerly seek employment moving about from place to place, wherever demand for their labour exists. The daily rate of wage is four annas rising to 8 annas at sowing and harvesting.

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## PART II.

### FUTURE MANAGEMENT DISCUSSED AND PRESCRIBED.

## CHAPTER VI.

### BASIS OF PROPOSALS.

#### 1.—*Working circles; how composed and reasons for their formation.*

75. The working circle is taken to be the unit of management for both felling and administrative conveniences, and in deciding upon its formation regard has been had to the importance of restricting it to a size compatible with efficient forest conservancy and with having not too large an area under felling at one place. The ideal working circle is an area of about 2,000 acres in one block so that it can be conveniently looked after by one forest guard and in which one coupe shall be located in due rotation. This plan has been followed as closely as possible, but in some instances local conditions have necessitated changes. Forests, such as Jangan, Daho, Islam, etc., standing by themselves, of sufficient size, constitute independent working circles, while large forests have been divided into two, three or more working circles. Muhari Deda and Chanjni forests are too small to be worked by themselves and are therefore joined on to Kadrapur and Kutta forests, respectively. For description of working circles, see appendix D.

#### 2.—*Compartments: justification of the sub-division adopted.*

76. The forests are sub-divided on a plan of squares or compartments of 160 acres and less in area by cross parallel lines cleared through the forests at right angles to each other. The squares are merely conventional sub-divisions adopted for the convenience of the inspection of the forests and the extraction of the produce and serve no scientific purpose as regards a differentiation of the crops. It is proposed to indicate them on the ground as well as on the map by a notation of letters and numerals combined; letters to denote series or rows of compartments and numerals, numbers in the series.

### 3.—*Analysis of the crop: method of valuation employed.*

77. No valuation was attempted as this was unnecessary in view both of the method of treatment to be adopted and the present abnormal condition of the forests. Appendix D gives a good idea of the composition and condition of the crops in each working circle from which a fairly accurate estimate of their contents and value may be judged.

78. It has been seen the average price per acre (Rs. 4·70) realised on the coupes sold under contract working during the last 8 years furnished an average out-turn of not quite 400 cubic ft. per acre calculated on the royalty due to the department. This represents anything but a normal condition of the crops, and is the result of repeated cutting in the past. Lack of water in the dry forests to assist regeneration is a further disabling cause of the low yield which has marked the working of the forests during the last several years.

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## CHAPTER VII.

### Method of treatment.

### 1.—*Object to be attained.*

79. The facts recorded in the preceding paragraphs go to show that the object with which the forests should be worked is to provide fuel for the railway and for local use, and pasture for cattle; and that these products should be grown on suitable areas of land which receive the benefit of the yearly floods. Lands that cease to be reproductive should be abandoned, and additional areas ought to be acquired in their place on the banks of the ri[redacted] By this means only will an adequate supply of the requisite products be k up, and a maximum of results ensured for a minimum of area. Babul a *tali* timber ought to be encouraged; the former by protection from browse and fire, and the latter by sowing and planting in riverside forests where th soil is adapted to its growth.

### 2.—*Method of treatment adopted.*

80. This coincides with what has been proposed for the forests of the other divisions, the circumstances being precisely similar. The method of clean-felling with natural and artificial regeneration best suits the condition of the forests and the description of the produce they are required to yield. *Bahan* and *lai* reproduce well by seed in the low-lying parts, and by coppice shoots and root-suckers where the soil is subject to ordinary floods; *kandi*, too, thrives well in similar circumstances, but retains its vitality and power of reproduction by coppice shoots from the parent stools long after the other species have died out; and babul is raised from seed practically self-sown in the *kachas* and moist forest tracts. Nearly in all cases reproduction will be natural, artificial aid being given only in *kandi* areas which have ceased to come under the direct influence of the river, and where babul, *bahan* and *lai* have no part in the regeneration.

81. It is not necessary that the fellings should take place on adjacent areas. The crops are usually uneven, and will be always more or less so on account of the changes of the river, so that a more equal annual yield will be possible by distributing the fellings in a working circle in the order in which the growth shows most advance, than in any close-fitting sequence of fellings which has no regard for what may, or may not be, on the ground. This requires that the Divisional Forest Officer should decide, after inspection one season before, in what part of the working circle that season's felling ought to be. Nor need the coupes in a working circle be annual and equal: a coupe may be allotted two years, and there may be no coupe in the third year, or as may be necessary, so long as the blank years are different in different forests. In this way the allotment of coupes will not be the mechanical process it usually is, and it will be easy to work out the mature growth in threatened spots liable to erosion.